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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/643,646

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Andreas Docter

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7590

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EXAMINER

HANDAL, KAITLY V

ART UNIT

PAPER NUMBER

1764

MAIL DATE

DELIVERY MODE

07/25/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/643,646

Applicant(s)

DOCTER ET AL.

Examiner

Kaity Handal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 7, and 9 are rejected under USC 102(e) as anticipated by Goebel et al. (US 6,838,062 B2).

With respect to claim 1, Goebel teaches a fuel processor comprising a mixture formation chamber/inlet (fig. 1, 52) configured to form a mixture of a hydrocarbon or a hydrocarbon derivative/fuel (48) with water (50) and air (36) (col. 5, lines 23-34); an autothermal reactor/reformer (14) (col. 3, lines 54-62), the autothermal reactor/reformer (14) including a catalyst material (col.4, lines 50-54); and a temperature regulated (col. 4, lines 50-60 and col. 7, lines 47-57) start-up burner (12 & 40) including a burner unit (12) configured to combust the hydrocarbon/fuel (30) with air (28) so as to heat at least one of the mixture formation chamber (52) and the autothermal reactor/reformer (14) to a respective operating temperature (col. 5, lines 8-10 and col. 4, lines 50-53), said start-up burner (12) being configured to meter/(flow control) an air supply (36) (col. 11, lines 44-47) to a mixing zone/inlet

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(40) where air of the air supply (36) is mixed with hot gas (32) coming out of the start-up burner (12 & 40), so as to regulate a temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor (col. 4, lines 50-60).

With respect to claim 2, Goebel teaches wherein a flow of the hot gas/exhaust gas is guided so that the hot gas/exhaust gas heats the autothermal reactor/reformer (14) without material contact with the catalyst material (col. 4, lines 47-54 and col. 5, lines 23-34).

Regarding limitations recited in claims 7 and 9 which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6 and 10 are rejected under USC 103(a) as being unpatentable over Goebel et al (US 6,838,062 B2), as applied to claim 1 above, and further in view of Chludzinski et al. (4,473,622).

With respect to claim 3, Goebel as modified discloses all claim limitations as set forth above but fails to show wherein a flow of the hot gas is guided into a reaction chamber of the autothermal reactor. Chludzinski teaches rapid starting reactor (fig. 1) wherein a flow of the hot gas (from burner (15)) is guided into a reaction chamber of the autothermal reactor/catalytic cracker (17) in order to bring the catalytic cracking bed up to the temperature at which cracking reaction is initiated (col. 3, lines 27-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to guide the flow of the hot gas into a reaction chamber of the autothermal reactor in Goebel's modified fuel processor, as taught by Chludzinski, in order to bring the catalytic cracking bed up to the temperature at which cracking reaction is initiated.

With respect to claim 4, Goebel teaches wherein a flow of the hot gas/exhaust gas is guided into the reaction chamber/reformer (14) via the mixture formation chamber/inlet (40) (illustrated in fig. 1).

With respect to claim 5, Goebel teaches wherein a flow of the hot gas/exhaust gas is fed directly into the mixture formation chamber/inlet (40) (illustrated in figure 1).

With respect to claim 6, Goebel teaches wherein a heat exchanger (16) configured to exchange heat between a product gas/reformate gas stream (54) of the autothermal reactor/reformer (14) and air (38) supplied to the mixture formation chamber/inlet (40) (illustrated in fig. 1.

With respect to claim 10, Goebel as modified discloses all claim limitations as set forth above but fails to show wherein reactor system/fuel processor is disposed in a fuel cell-driven motor vehicle. Chludzinski teaches wherein reactor system/fuel processor is disposed in a fuel cell-driven motor vehicle in order to function as a highly effective fuel cell power source (col. 7, lines 33-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to dispose Goebel's modified reactor system/fuel processor in a fuel cell-driven motor vehicle, as taught by Chludzinski, in order for said reactor system to function as a highly effective fuel cell power source.

### ***Allowable Subject Matter***

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reasons for allowance is that the apparatus of claim 1 when combined with having the start-up burner include a housing configured for the bypass air to flow between the housing and the burner unit, wherein the housing includes a mixing zone

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configured to mix hot gas coming out of the burner with the bypass air, and wherein said burner unit being disposed in the housing is absent from any prior art of record.

### ***Response to Arguments***

#### **35 USC § 103 Rejection**

Applicant argues that Goebel's inlet (40) is not a mixing zone. Examiner respectfully disagrees. Goebel teaches that inlet zone (40) includes fuel inlet (48) and air inlet (50) (col. 5, lines 26-30) and therefore inlet zone (40) inherently functions as a mixing zone for mixing fuel and air.

Applicant argues that Goebel does not show "a mixing zone where air of the air supply is mixed with hot gas coming out of the burner unit so as to regulate a temperature of hot gas coming out of the start-up burner to a value near or below a deterioration temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor." Examiner respectfully disagrees. Goebel does teach a mixing zone/inlet (fig. 1, 40) where air of the air supply (36 and 50) is mixed with hot gas (32) coming out of the burner unit (12) so as to regulate a temperature of hot gas coming out of the start-up burner (12), before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor (14) (as illustrated in Figure 1) (col. 4, lines 50-60).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KH  
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7/11/2007

  
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